

Agriculture and Forestry Technical Work Group

Draft Policy Option: A4. Change Livestock Feedstocks

1. Policy Description:

- a. Lay description of proposed policy action: *Reduce methane and nitrous oxide emissions from cattle and manure by changing (optimizing) livestock feedstocks. Vegetable oils are more dense digestible energy sources that require less fermentation in the rumen for energy to be released. CH₄ reductions may be achieved through improving the quality of the diet of the livestock, which tends to result in higher productivity. By needing fewer animals to produce a given amount of product, the amount of CH₄ emissions per unit of product is reduced. It may also be possible to reduce CH₄ by influencing the rumen fermentation process through feed additives, such as ionophores or probiotics.*
- Emissions of N₂O resulting from livestock manure may be reduced by increasing the productivity of a smaller number of animals through improved diet. Use of low-protein feed may also reduce the amount of nitrogen excreted.*

b. Policy Design Parameters:

- i. Implementation level(s) beyond BAU: *Change feedstock for X head of cattle to a feed regimen that lowers methane and nitrous oxide emissions. Reduction of X percent in methane emissions from enteric fermentation achieved by the change in feed regimen. Reduction of X percent in nitrous oxide emissions during manure management by the change in feed regimen (i.e. due to decreases in manure nitrogen).*
- ii. Timing of implementation: *Head of cattle (or fraction of population) affected by feedstock change from 2006-2020, including head of receiving the change in by 2010 and 2020 and any necessary ramp up period. Also number of head of cattle (or fraction of population) affected by 2050.*
- iii. Implementing parties:
- iv. Other
- c. Implementation Mechanism(s): Indicate which mechanisms are to be used, and describe the specific approach that is proposed
- i. Information and education
- ii. Technical assistance

- iii. Funding mechanisms and or incentives
- iv. Voluntary and or negotiated agreements
- v. Codes and standards
- vi. Market based mechanisms
- vii. Pilots and demos
- viii. Research and development
- ix. Reporting
- x. Registry
- xi. Other?

2. BAU Policies/Programs, if applicable:

- a. Description of policy/program #1
- b. Etc.

3. Types(s) of GHG Benefit(s):

- a. CO₂: *Not applicable*
- b. CH₄: *Addition of edible oils to feedstocks can reduce CH₄ emissions from enteric fermentation in cattle.*
- c. N₂O: *Can be reduced by increasing nitrogen uptake by the animal, which leaves less nitrogen to be excreted. Lower nitrogen in the manure is assumed to lead to lower N₂O emissions.*
- d. HFC's, SFC's: *Not applicable*
- e. Black Carbon: *Not applicable*

4. Types of Ancillary Benefits and or Costs, if applicable:

- a. *Addition of edible oils, such as flax oil, to feedstocks can produce meat and milk products with enhanced health benefits.*
- b. *Lower nitrogen in the manure and urine can also lead to lower ammonia emissions and leaching/runoff of nitrogen to ground/surface water.*
- c. Etc.

5. Estimated GHG Savings and Costs Per MMTCO₂e:
 - a. Summary Table of:
 - i. GHG potential in 2012, 2020, 2050
 - ii. Net Cost per MMTCO₂e in 2012, 2020, 2050
 - b. Insert Excel Worksheet showing summary GHG reduction potential and net cost
6. Data Sources, Methods and Assumptions:
 - a. Data Sources
 - b. Quantification Methods
 - c. Key Assumptions
7. Key Uncertainties if applicable:
 - a. Benefits
 - b. Costs
8. Description of Ancillary Benefits and Costs, if applicable:
 - a. Description of issue #1
 - b. Description issue #2
 - c. Etc.
9. Description of Feasibility Issues, if applicable:
 - a. Description of issue #1
 - b. Description of issue #2
 - c. Etc.
10. Status of Group Approval:
 - a. Pending
 - b. Completed
11. Level of Group Support:

- a. Unanimous Consent
- b. Supermajority
- c. Majority
- d. Minority

12. Barriers to consensus, if applicable (less than unanimous consent):

- a. Description of barrier #1
- b. Description of barrier #2
- c. Etc.